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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/803,319	03/18/2004	Rafael L. Espinoza	1856-43200 (9730.0-02)	5941
31889	7590	07/14/2006	EXAMINER	
DAVID W. WESTPHAL CONOCOPHILLIPS COMPANY - I.P. Legal P.O. BOX 1267 PONCA CITY, OK 74602-1267			PARSA, JAFAR F	
			ART UNIT	PAPER NUMBER
			1621	

DATE MAILED: 07/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/803,319	ESPINOZA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Jafar Parsa	1621	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 March 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 1-10 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-13 and 15-17 is/are allowed.
- 6) ☒ Claim(s) 14 and 18-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>5/6/2004</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Election/Restrictions***

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-10, drawn to a method for selecting maximum size for catalyst particles, classified in class 502, subclass various.
- II. Claims 11-24, drawn to a method for producing hydrocarbons, classified in class 518, subclass 700.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different designs, modes of operation, and effects (MPEP § 802.01 and § 806.06). In the instant case, the different inventions have different modes of operation. The invention of Group I is directed to a method for determining the maximum size for catalyst particles, whereas the invention of Group II is related to a process for producing hydrocarbons from synthesis gas.

Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

During a telephone conversation with Ms. Watkins on 7/5/2006 a provisional election was made without traverse to prosecute the invention of Group II, claims 11-24. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-10 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Rejections - 35 USC § 112***

Claims 14 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The variable "*M*" in claims 14 and 18 render the claim indefinite. The variable "*M*" is not defined by the claim and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 18-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maretto et al (USPN 6,348,510).

Applicants' claimed invention is directed a method for producing hydrocarbons from syngas in a slurry bubble column reactor comprises the use of catalyst such that the catalyst particles have average Reynolds number of less than about 0.1, and passing a synthesis gas feed stream in a slurry bubble column reactor over said catalyst under conversion promoting conditions to convert at least a portion of the synthesis gas to hydrocarbon products.

Marretto teaches a process for effecting the production of hydrocarbons according to the Fischer-Tropsch method comprising:

- a) feeding the reagent gases (syngas) into a reactor and
- b) at least partially recovering the hydrocarbons formed in step (a) by external or internal separation from the catalytic particles. The reaction is carried out in the presence of solid particles which have a particle Reynolds number greater than 0.1, preferably from 0.11 to 50, even more preferably from 0.2 to 25. See abstract and col. 3,

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lines 10-15. Reynolds number of catalyst particles depend on the average particle diameter ( $d_p$ ), relative velocity ( $v$ ), density of the liquid ( $p_L$ ) and the viscosity of the liquid. See col. 3, lines 15-20.

Marretto discloses that for example, if the slurry column reactor is operating with solid particles having a density equal to  $1.9 \text{ g/cm}^3$  the average solid particle dimensions must remain below 60 micron to make Stokes' law applicable. In this case, to operate within the scope of the patent Exxon EP' 860, it is necessary to have  $5 \text{ microns} < d_p < 60 \text{ microns}$ . If the liquid has different properties from those indicated in EP'860, for example if viscosity= $0.005 \text{ gr/cm/sec}$  then in order to have  $Re_p < 0.1$ , the particles must have average dimensions  $d_p < 38 \text{ microns}$ . See col. 8, lines 14-30. The reference inherently discloses wherein the catalyst has an effectiveness factor greater than 0.7. To obtain a definite reagents conversion and productivity to hydrocarbons, and wishing to operate with particles which are sufficiently large to allow easy separation, but sufficiently small to minimize the diffusive intraparticle effect. See col. 12, lines 40-45.

The difference between Marretto and the claimed invention is that the instant claims require having catalyst particles with an average Reynolds number of less than about 0.1. However, Marretto teaches that in order to have  $Re_p < 0.1$ , the particles must have average dimensions  $d_p < 38 \text{ microns}$ . It would therefore have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the process to operate with particles which are sufficiently large to allow easy separation, but sufficiently small to minimize the diffusive intraparticle effect.

***Allowable Subject Matter***

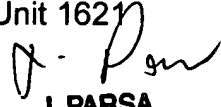
Claims 11-13 and 15-17 are allowed. The prior art of record neither teaches nor suggests selecting catalyst particles have Archimedes number between 0.02 and about 250 in a method for producing hydrocarbons.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jafar Parsa whose telephone number is (571)272-0643. The examiner can normally be reached on 8 a.m.-4:30 p.m. (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman Page can be reached on 571-272-0602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JP  
July 10, 2006

Jafar Parsa  
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